

A NEW SPECIES OF *CARDIOCHILES*
(HYMENOPTERA: BRACONIDAE) INTRODUCED INTO
FLORIDA TO CONTROL *DIAPHANIA* SPP.
(LEPIDOPTERA: PYRALIDAE)

PAUL M. MARSH

Systematic Entomology Laboratory, IIBIII, Agricultural Research Service,
USDA, % National Museum of Natural History, Washington, D.C. 20560.

Abstract.—A new species of the genus *Cardiochiles* is described from Colombia, Venezuela, and Trinidad. This parasitoid braconid attacks larvae of *Diaphania* spp. and is being colonized in Florida for future release against *D. nitidalis* and *D. hyalinata*.

Species of *Cardiochiles* are parasitoids of Lepidoptera larvae. They have been studied taxonomically for North America (Mao, 1945, 1949) but the species of South and Central America are unstudied. This new species is described in order to facilitate its identification and to provide a name in support of biological control studies in Florida.

This species of *Cardiochiles* was collected in Colombia and introduced into Florida by J. E. Pena and V. Wadill, University of Florida, in a biological control program against *Diaphania nitidalis* (Stall), the melonworm, and *D. hyalinata* (L.), the pickleworm. The parasitoid is being colonized in Homestead, Florida for future releases. In addition, the National Collection of Insects contains specimens from Venezuela reared from *D. hyalinata* and specimens from Trinidad.

Cardiochiles diaphaniae Marsh, NEW SPECIES

Figs. 1-3

Female.—Length of body, 4.5–5.5 mm; ovipositor, 0.8–1.0 mm. Color: head, thorax and abdomen honey yellow; antennal pedicel and flagellum black, scape with brown stripe laterally, ocellar triangle black, vertex occasionally black between eyes across ocelli; apex of middle tibia and middle tarsal segments black, hind coxa with black spot dorsally at apex, hind trochanter black, apex of hind femur black; base and apex of hind tibia black, apex of hind tarsomeres black, occasionally last 4 tarsomeres black; median black spot on apical segments of abdomen, ovipositor sheaths black; fore wings hyaline, infuscated at apex beyond second cubital cell (Fig. 1), mediellen cell of hind wing infuscated at base. Head: smooth, face elongate (Fig. 2), malar space $\frac{1}{3}$ eye height, lower clypeal margin bidentate medially (Fig. 3), occiput deeply excavated so that vertex narrow at ocelli, eyes hairy, antenna 32–35 segmented. Thorax: mesonotum smooth, notauli deep and scrobiculate, mesopleuron smooth, propodeal carina very strong, central areola diamond-shaped. Abdomen: terga smooth, central diverging grooves on

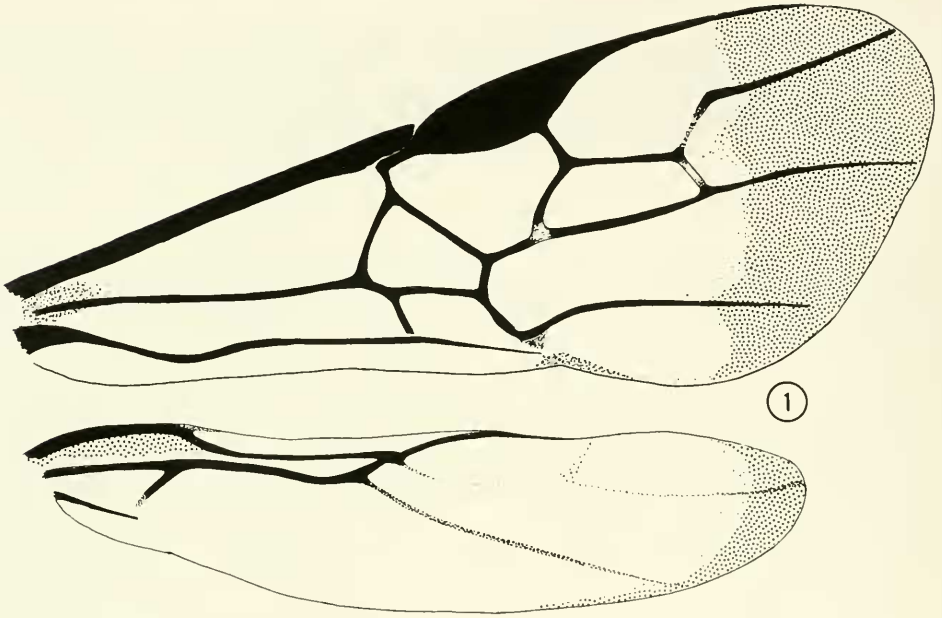


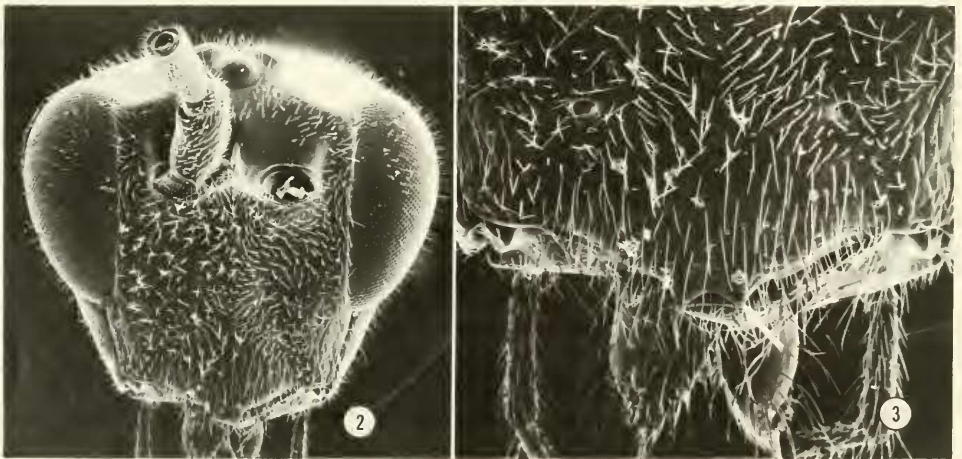
Fig. 1. *Cardiochiles diaphaniae* wings.

first tergum smooth, ovipositor about equal in length to $\frac{1}{2}$ hind basitarsus, sheaths broad and hairy. Legs: hind femur about 3 times as long as wide. Wings (Fig. 1): apical segment of radius sharply angled at base, first discoidal cell and median cell along medius nearly free of hair.

Male.—Identical to female except for usual sexual differences.

Holotype ♀.—Palmira, Colombia, VI-20-84, B. Gutierrez, reared from *Diaphania* sp. Deposited in National Museum of Natural History, Washington, D.C.

Paratypes.—2 ♀♀, 1 ♂, same data as holotype; 1 ♀, 1 ♂, Palmira, Colombia, IV-



Figs. 2-3. *Cardiochiles diaphaniae*. 2, Face. 3, Clypeus.

16-84, J. E. Pena; 3 ♀♀, 1 ♂, Palmira, Colombia, VI-3-83 and VI-24-83, B. Gutierrez, Parasite of *Diaphania hyalinata*; 4 ♂♂, Palmira, Colombia, VIII-5-83, L. Quintero, ex. *Diaphania hyalinata*; 2 ♀♀, 3 ♂♂, Aragua, El Limon, Venezuela, VIII-9-68 and VIII-29-68, J. C. Marin-D. Villasmil-J. B. Teran, ex. larva of *Diaphania hyalinata*; 1 ♀, Maracay, Venezuela, VII-23-55, P. Guagliumi, parasite of *Diaphania hyalinata*; 1 ♀, 1 ♂, Caiman, Trinidad, III-17-61, N. Gopaul; 4 ♀♀, Aranguez Est., Trinidad, II-19-61, N. Gopaul; 1 ♀, St. Augustine, Trinidad, II-8-61; 6 ♀♀, 1 ♂, Curepe, Trinidad, III-27-61, N. Gopaul, VIII-7 to 12-77, malaise trap. Deposited in USNM, Canadian National Collection, and Florida Collection of Arthropods.

This species will run to *Cardiochiles ornatus* (Cresson) in Mao's (1945) key to the Mexican species. It is similar in overall coloration to *C. ornatus* from Mexico and *C. atricornis* (Ashmead) from the West Indies but both have completely infuscated wings rather than the apical infuscation on the wings of *diaphaniae*. In Mao's key to North American species (1949) *diaphaniae* will run to *C. theriberiae* Rohwer but the body color (honey yellow) and wing pattern (hyaline with infuscated apex) will distinguish *diaphaniae* from all described North American species.

LITERATURE CITED

- Mao, Y.-T. 1945. Synopsis of the Mexican species of *Cardiochiles* Nees (Hymenoptera: Braconidae). Pan-Pac. Entomol. 21: 125-134.
- . 1949. The species of ichneumon-flies of the genus *Cardiochiles* occurring in America north of Mexico. Proc. U.S. Natl. Mus. 99: 229-266.